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has had the patience to count the facets in the eyes of 150 species of beetles. He finds that the larger the specimen, the more numerous are the facets, and that usually there is not much difference in the sexes. The male in many cases, however, has more facets than the female. In *Lampyris splendidula* the male has 2,500 facets, while the female has but 300. *Melolontha vulgaris* has, male, 5,300, female, 4,850; and *Saperda carcharias*, male, 2,200, female, 1,800. There is no general reduction in nocturnal species.

South American termites are the subject of an exhaustive paper by Dr. N. Holmgren.⁵ It is based on collections made in parts of Peru and Bolivia. Out of the thirty-nine species taken, twenty-six are described as new. He adopts the genera of Wasmann. Nearly one half of the article treats of the ethology and postembryonal development; the latter subject being almost entirely new. There are chapters on swarming, the founding of colonies, the enlargement of the nest, the use of the soldier, symbiosis of different species, classification by the nesting habits, and the geographical distribution of all the species known from South America.

Dr. K. Escherich describes some interesting new genera of exotic Thysanura,⁶ the most remarkable being *Assmuthia*, with two new species from India. This genus bears much general resemblance to some Collembola, with nearly equal segments, a strongly convex body, and very short anal stylets. It occurs in ants' nests.

A. Dücke publishes a supplement to his former article on the habits of Brazilian social wasps.⁷ The nests of nearly ninety species are now known to him. He gives a key to the genera of South American Vespidae, and a

⁵ "Studien über südamerikanische Termiten," *Zool. Jahrb., Abt. Syst.*, XXIII., pp. 521-676, 60 figs., 1906.

⁶ "Beiträge zur Kenntnis der Thysanuren," *Zool. Anzeiger*, XXX., pp. 737-749, 1906.

⁷ "Sobre as Vespidas sociaes do Para—Suplemento," *Bol. do Museu Goeldi*, IV., No. 4, 1906, pp. 652-698.

classification by nests and habits. Photographs of nests are on four double plates.

NATHAN BANKS.

BOTANICAL NOTES.

'PROGRESS OF BOTANY.'

UNDER this alternative English title Doctor J. P. Lotsy, of Leiden, has begun the publication of an annual summary of the recent advances in botany to be known under its Latin title as 'Progressus Rei Botanicae' (Gustav Fischer, Jena, 18 mk.). Only the first Heft of 317 pages has come to hand, but the prospectus promises the completion of the first volume during the present winter. Hereafter it is the intention of the editor to publish the *Heften* at intervals of about four months, the three *Heften* making an annual volume of from six to eight hundred pages. The part before us contains four articles, viz.: 'Die Ontogenie der Zelle seit 1875,' by Professor Eduard Strasburger; 'The Present Position of Palaeozoic Botany,' by Doctor D. H. Scott; 'Bibliography of Literature on Palaeozoic Fossil Plants,' by E. A. Newell Arber, and 'Les progrès de la Géographie botanique depuis 1884,' by Professor Ch. Flahault. The treatment is considerably different in these papers. The first, by Strasburger, is an admirable summary of the steps by which our present knowledge of the process of cell division, and especially of karyokinesis, has been built up by additions made by many investigators. Dr. Scott's paper is an attempt to give a sketch of our present knowledge of paleozoic plants, and his treatment is somewhat more general than the preceding one. In Professor Flahault's paper the treatment is still more general, and is much more like a somewhat popular lecture on the subject to a company of botanists who were not specialists in phytogeography. It is an admirable introduction to the present development of this branch of Botany as understood by the author of the paper. The bibliographical paper by Mr. Arber is thoroughly classified, and must prove of great service to paleobotanists.

A full review of this promising publication, which must be indispensable to every botanist,

is reserved until the completion of the volume, which is promised within a few months.

VEGETATION PHOTOGRAPHS.

ATTENTION has already been called to the admirable reproductions of photographs of vegetation issued under the editorship of Professors Karsten and Schenck, and bearing the title of 'Vegetationsbilder.' The publication consists of quarto Heften, each containing six plates, and as there are eight Heften for each volume, it follows that the latter will contain forty-eight plates. Three volumes are already completed, and five Heften of the fourth volume have appeared. With each plate is a short descriptive text covering a page or two. The Heften which have appeared during 1906 include 'Vegetationsbilder aus Kleinasien,' by Emerich Zederbauer; 'Vegetationstypen von der Insel Koh Chang im Meerbusen von Siam,' by Johs. Schmidt; 'Ameisenpflanzen des Amazonasgebietes,' by E. Vle; 'Das südliche Togo,' by Walter Busse; 'Vegetationsbilder aus Feuerland, von den Falkland-Inseln und von Sudgeorgien,' by Carl Skottsberg; 'Westafrikanischen Nutzpflanzen,' by Walter Busse. The beauty of the photographs and the admirable manner of their reproduction merit the highest praise. They must constitute an indispensable addition to every botanical library.

SHORT NOTES.

SEVERAL months ago, H. A. Gleason published in the *Bulletin* of the New York Botanical Garden (Vol. 4, No. 13) 'A Revision of the North American Vernonieae,' which should go far toward clearing up the confusion regarding the species of this tribe of Compositae. Seventeen genera are recognized, of which one—*Orthopappus*, a segregate of *Elephantopus*, is new. Of the 143 species here described, 99 are referred to the genus *Vernonia*, and of these, twenty-five are new to science. No less than ten of the genera are monotypic.—The genus *Ptelea*, represented in the northern states by the well-known hop-tree (*P. trifoliata*) expands wonderfully in the west and southwest, where, according to a recent monograph entitled 'The

Genus *Ptelea* in the Western and Southwestern United States and Mexico' (Contrib. U. S. Nat. Herb., Vol. X.) by Dr. Edward L. Greene, there are fifty-nine species. In this paper, fifty-five of the species are described as new. It is noteworthy that in framing names for these species, the author has most commendably not found it necessary, excepting in one instance, to make use of the names of persons.—Botanists may now read an official account of the proceedings of the international botanical congress which took place in Vienna in 1905. A committee, consisting of Professors Wettstein and Wiesner, and Doctor Zahlbrückner, has issued a thick octavo pamphlet of 268 pages, entitled 'Verhandlungen des Internationalen Botanischen Kongresses in Wien, 1905' which gives the history of the movement which culminated in the congress, its personnel, the programs of the sessions, the discussions, etc., and the resulting 'International Rules of Botanical Nomenclature.' The latter are given in French, English and German. Along with the latter is given the list of generic names ('nomina conservanda') which are to be retained, the rule of priority to the contrary notwithstanding. The pamphlet may be obtained from the publisher (Gustav Fischer of Jena) for 12.50 Marks.—The same committee has issued a similar but somewhat larger (452 pages) pamphlet under the title of 'Résultats scientifiques du Congrès international de Botanique Vienne 1905.' It is edited by Dr. J. P. Lotsy, and is published also by Fischer (20 marks). It contains twenty-seven papers, mostly in German (one in English) which were presented during the scientific sessions of the Vienna Botanical Congress in 1905. The only paper by an American botanist is one by Professor Doctor Arthur on the structure, development and classification of the Uredineae.—A little book, issued three years ago by the same German publisher entitled 'Dendrologische Winterstudien' by C. K. Schneider, should be of much value to students of trees in these days when so many are fitting themselves for work in forestry. About sixty pages are given to the general organography of trees, including their general

form, arrangement of twigs, bark, lenticels, buds, etc., and this is followed by somewhat more than 160 pages describing the species of trees arranged according to winter characters. Following this is a systematic synopsis of the species, arranged in their appropriate families. A short bibliography and a full index complete the volume of nearly 300 small octavo pages. The work is very freely illustrated with drawings or half-tones of twigs, buds, hairs, sections of buds, twigs, bark and wood.

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SCIENTIFIC NOTES AND NEWS.

THE American Association for the Advancement of Science and the national scientific societies affiliated with it are this week holding, in New York City, a meeting which promises to be one of the most important and largest gatherings of American men of science. Programs of the meetings have been printed here, and there is printed above the address of the retiring president of the association, Dr. C. M. Woodward, of Washington University. There will be published in the next and succeeding issues of SCIENCE full reports of the proceedings.

PROFESSOR J. A. BOWNOCKER, of the State University, has been appointed state geologist of Ohio to succeed Professor Edward Orton, Jr., resigned.

M. VIDAL DE LA BLACHE, professor of geography at the Sorbonne, has been elected a member of the Paris Academy of Sciences in the room of the late Albert Sorel.

MAJOR EDGAR A. MEARNs, known for his important contributions to natural history, who has been chief surgeon of the department of Mindanao, has been relieved from duty in the Philippines and will proceed to the United States.

DR. ALEXANDER GRAHAM BELL delivered an illustrated address before the Washington Academy of Sciences on December 13 'On Aerial Locomotion, with a few Notes of Progress in the Construction of an Aerodrome.' The address was discussed by Pro-

fessor A. F. Zahm, of the Catholic University, Washington, D. C., and Mr. C. M. Manly, of New York City, formerly assistant to the late Secretary Langley.

PROFESSOR R. S. CHITTENDEN, of Yale University, will deliver a series of lectures next spring before the faculty and students of the College of Science of the University of Illinois. The general subject of the lectures will be the physiology of nutrition.

ON Monday evenings in February and March Professor Henry Edward Crampton, of Columbia University, will deliver a series of lectures upon 'The Doctrine of Evolution: its Basis and its Scope,' at Cooper Union.

THE first public lecture of the winter will be delivered in the Academy of Medicine, New York City, on Saturday evening, December 29. The lecturer will be Dr. Wilfred T. Grenfell, C.M.G., physician to the missions of the Labrador coast, who will take for his subject, 'The Work of a Labrador Doctor.'

A MAGNETIC survey of Mexico is now in progress under the joint auspices of the Mexican Government and the Department of Terrestrial Magnetism of the Carnegie Institution of Washington. The Mexican Government has two parties in the field under the direction of the Observatorio Astronomico Nacional Mexicano, Engineer Señor Abel Dias Covarrubias having charge of the eastern party and Señor Manuel Moreno y Anda being in charge of the western party, embracing the Pacific Coast from Manzanillo to Guaymas, inclusive of Lower California. The Carnegie Institution observer, Mr. J. P. Ault, will confine his operations to the part of Mexico north of the 25th parallel, upon the completion of which he will then proceed to Campeche, Yucatan and the Central American countries. The early completion of the general magnetic survey of Mexico being thus assured, it will be possible within the next year to construct accurate magnetic maps for the region between the parallels of latitude 20° and 49° North and meridians of longitude 65° and 125° West of Greenwich.

ON the twenty-first of August last Professor Olof Hammarsten was sixty-five years